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ANNALS OF PHYSICAL AND REHABILITATION MEDICINE

Pressure ulcers – burns

Lectures

CO23-001-e

Future of cell therapy

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Keywords: Cell therapy; SVF; Adipose tissue; Platelet rich plasma

Cell therapies are meant to become one of the upcoming major advances in medicine. Regenerative therapy is an emerging field; which aim is to repair and restore lost or damaged tissue functions resulting from injuries, disease or aging. There are many different ways to perform cell therapy:
– cells are immediately available without modification; cells are immediately available with a slight modification;
– cells are cultivated, amplified and transformed; cells are modified by gene therapy.
Our present topic is focused only on cells therapies with minimal manipulation. We can use the differentiated cells such as platelets or use a set of cells composed of differentiated, progenitor and stem cells such as mononuclear cells of bone marrow, or stromal vascular fraction of adipose tissue.
We have analyzed published clinical trials using the criteria of evidence-based medicine, on:
– bone marrow cells because they are the most studied and used since the sixties;
– stromal vascular fraction of adipose tissue;
– platelet rich plasma.
If we want to obtain more predictable results it is necessary to qualify and quantify the biological product delivered, determine the effective dose for each indication, perform double blind multicentre clinical trial.

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CO23-002-e

Computer simulations reveal the biomechanical efficacy of pressure ulcer protection technologies

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Pressure ulcers (PUs) tend to develop in individuals with mobility and sensation impairments when soft tissues are subjected to sustained deformations, particularly between a bony prominence and an external support such as a bed or a wheelchair. One of the most important guidelines for preventing PUs is to use a soft support surface under weight-bearing soft tissues, in order to better distribute mechanical loads at the contact as well as internally in the body. Here, we present utilization of MR-imaging-based computational simulations as a state-of-the-art methodology for revealing the mechanisms of action and for evaluating the efficacies of PU protection technologies in regulating soft tissue loads. The focus is on the supported buttocks and heels, which are the most susceptible sites for PUs in seated and supine patients. Specifically, we demonstrate how MRI-based computer modelling is able to provide quantitative and accurate, non-invasive and population-specific evaluation of deep tissue deformations and to reveal the quality of tissue protection provided by different technologies.

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Surgical treatment of acute burns and post burn skin contractures: Consequences for scar management and rehabilitation

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Keywords: Burns; Surgery; Scar management; Rehabilitation

Different surgical procedures can be used for the treatment of acute burns. Split thickness skin grafts are used to treat acute burns, except in specific locations as eyelids. Dermal substitutes can be used in case of deep burn in functional areas, in order to ensure a better skin elasticity. Flaps are necessary when deep subcutaneous structures, as bone or tendons, are exposed. Amputations may be performed in some cases.
In reconstructive surgery of post burn skin contractures, full thickness skin grafts are preferentially performed, due to a better skin elasticity than split thickness skin grafts. Dermal substitutes can be used to remove and cover some scar contractures too large to be treated by full thickness skin grafts. Skin flaps are thicker and are able to grow in surface. Skin expansion provides the same skin as perilesionnal skin. Adipose graft reconstructs an adipose layer between skin and subcutaneous structures.
These different techniques provide different types of skin, in terms of adhesion to the subcutaneous tissues, skin thickness and elasticity, requiring adapted scar management and rehabilitation.

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CO38-002-e

Organization of aftercare for patients with severe burn injuries in Belgium

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Keywords: Burn injuries; Aftercare; Rehabilitation

Background.– Since patients with severe burns are being treated in specialized burn centres, mortality rates have increased substantially. However, the long-term consequences on different life domains remain significant. Belgium has 6 burn care centres comprising 70 beds covering the acute and critical care phase. Post-acute care is less organized and at the request of the Belgian Burn Foundation the Belgian Health Care Knowledge Centre (KCE) performed a research project on this topic.
Methods.– Peer-reviewed articles and grey literature were studied. Databases were analyzed. In depth-interviews with patients, representatives of their organizations and physicians, and focus groups with allied health professionals were conducted. Proposed solution elements were discussed with a selection of stakeholders.
Results.– Twelve recommendations have been formulated over three main problem areas (knowledge, organizational and payment related problems) such as the development of burn care networks and of multidisciplinary guidelines.
Discussion.– The study showed numerous problems in organizing post-acute care for severely burned patients. It described existing local initiatives to improve recovery and reintegration that need coordination and harmonization at the macro-level to provide accessible equitable support to all patients. However, the formulated recommendations need to be transformed into concrete actions and reforms.

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Hands "plaquettes": Innovating orthesis to prevent sequels of burns on hands of the little children

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Keywords: Burns; Hands; Children; Orthesis

Treatment of burns on hands of the little child is difficult (small size, rapid onset of retractable adhesions). Dressings are positional: opened hands, isolated fingers. But, without rigid support, the maximum cutaneous extension is not maintained. Orthesis are difficult to manufacture, adapt and tolerate. The "Plaquettes", used since 5 years, constitute a rigid support, manufactured in series, starting from standardized measurements of hands of children, less than 6-years-old.
They are made of thermoformable plastic. They maintain the opening of palm, the extension of fingers and the spacing of commissures. A round notch at the level of commissures makes it possible to tie the bandage to avoid any slip.
Children, with deep burns of hands, are treated with dermo-epidermal grafts. The initial goal was to use the "plaquettes" as an adjunct to positional dressing. Treatment is often continued, associated with compression glove. The "plaquette" is modified if necessary. In case of fixed retraction, it is necessary to plaster first. The effect is very positive to prevent commissural and palm retractions. Hands "plaquettes" have demonstrated their usefulness to prevent or limit the occurrence of retractions. This treatment should be performed by trained and competent personnel. Parents receive therapeutic education.

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Oral communications

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Telemedicine consultation in nursing home for patients with pressure ulcers

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Keywords: Telemedicine; Pressure ulcers; Nursing home

Background.– Among the themes identified by the Regional Program of Telemedicine, care of patients living in nursing homes was chosen.
Objectives.– The objective was to improve the care of patients with pressure ulcers.
Methods.– This experimentation (September 2012–2013) is based on teleconsultations: connection with the expert team (geriatrician, nurse, occupational therapist, dietician [Geriatric Center – CHU Bordeaux]) with the team of the nursing homes, after obtaining the patient's and GP's consent. A comparative analysis of the results (before versus after teleconsultation) was performed (SPSS-11.5 software).
Results.– Six nursing homes (Gironde, Dordogne) were included with a total of 90 teleconsultations with 64 pressure ulcers. Results showed:
– reduction of pain ($P = 0.021$);
– reduction of pressure ulcers area ($14 \pm 4.5\,cm^2$ vs. $6.7 \pm 2.6\,cm^2$; $P = 0.06$);
– reduction of the rhythm of dressing changes (every 1.5 ± 0.1 days vs. 3.8 ± 0.4 days; $P < 0.0001$);
– decrease of the average cost of dressings per week (35.2 ± 6.7 vs. 14.5 ± 1.9 euro; $P = 0.007$);
– increase in monitoring recommendations.
Without these teleconsultations, GPs would have referred their patients to specialists in 63.2% of cases.
Conclusions.– Telemedicine is a useful tool to improve continuity of care for patients with pressure ulcers.

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CICAT-LR, telemedicine in wounds, an experience in south of France

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Keywords: Network; Wounds; Telemedicine

The CICAT-LR network's main mission since 1999 is to improve the quality of care for difficult healing wounds in Languedoc-Roussillon at the request of any professional in trouble.
Each file is gripped by a referent nurse and validated by a physician coordinator on a computer and appropriate secure software. The coordination unit then provides information to physician and proposes a strategy for management of the patient taking into account the context and situations of life of the patient.
The DOMOPLAIES project aims to facilitate the monitoring of patients without additional cost, to limit the movement of patients and experts in certain areas of the remote region, but also to allow the expert wound care to give a remote consultation under tele-shaped, to accompany remote support caregivers in footwork or provide them with supports tele-expertise, by a notice in the form of multidisciplinary meeting (RCP), under the auspices of the expert medical in wound healing. Telemedicine and the use of all the new technologies should also strengthen the mission of practical training of practitioners and enable the transfer of skills.

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Guidelines for taking care of patients at risk or with pressure ulcers (PU)

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Keywords: Pressure ulcers; Guidelines

Background.– Previous guidelines were in 2001 [1]. PU is complication for old patients, and/or low mobility [2]. PERSE conduct new guidelines with Société française de médecine physique et de réadaptation (SOFMER), Société française